TESTIMONY OF

THE DEFENSE NUCLEAR FACILITIES SAFETY BOARD

A.J. EGGENBERGER, ACTING CHAIRMAN

A REVIEW OF ONGOING MANAGEMENT CONCERNS AT LOS ALAMOS NATIONAL LABORATORY

SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS

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INTRODUCTION

Mr. Chairman and members of the Subcommittee, I appreciate the opportunity to present testimony on the health and safety oversight activities of the Defense Nuclear Facilities Safety Board at the Los Alamos National Laboratory.

I would like to first summarize the statutory safety oversight mission of the Board, then briefly review the Board's recent oversight activities relevant to the Los Alamos National Laboratory and the Board's current health and safety focus at that site.

THE BOARD'S STATUTORY OVERSIGHT MISSION

Congress created the Defense Nuclear Facilities Safety Board (Board) as an independent technical agency within the Executive Branch, external to DOE, to identify the nature and consequences of potential threats to public health and safety at the Department of Energy's defense nuclear facilities, to elevate such issues to the highest levels of authority, and to inform the public. The Board is not a regulator, but a small advisory agency with approximately 60 technical staff.

The Board's approach to conducting its nuclear safety oversight mission is to identify conditions or deficiencies to DOE. The Board provides advice and recommendations to DOE primarily by way of letters, reporting requirements, and formal Recommendations to the Secretary of Energy. DOE can accept or reject the Board's advice and recommendations. Although DOE's contractors take most of the actions in response to the Board, the Board works primarily through DOE - both headquarters and site office staff.

Operations at DOE's defense nuclear facilities include: assembly, disassembly, and dismantlement of nuclear weapons; and maintenance and surveillance of the aging nuclear weapons stockpile. Operations at defense nuclear facilities also include the stabilization and storage of nuclear materials, the deactivation and decommissioning of facilities, and the processing and storage of radioactive waste. Broadly speaking, the Board provides nuclear safety oversight of DOE's defense nuclear facilities from design through construction, operation, and decommissioning.

The Board conducts its safety oversight of DOE-National Nuclear Security Administration (NNSA) activities at the Los Alamos, Lawrence Livermore, and Sandia National Laboratories; the Pantex Plant, the Y-12 National Security

Complex, the Savannah River Site, and the Nevada Test Site. The Board also conducts nuclear safety oversight of DOE's Environmental Management activities at these sites as well as the Hanford Site, Idaho National Laboratory and Idaho Cleanup Project, Oak Ridge National Laboratory, Waste Isolation Pilot Plant, and the Fernald and Mound Sites in Ohio. In establishing its safety oversight program, the Board allocates its resources based on a number of factors, including (1) urgency in terms of any imminent threat to public health and safety; (2) potential risk to public health and safety; (3) effectiveness of DOE management in managing the risks; and (4) timeliness in relation to DOE programmatic or operational goals. In assessing priorities, the Board considers issues brought to its attention by all sources, including workers and members of the public.

The Board's jurisdiction covers nuclear safety oversight of DOE's defense nuclear facilities and activities. As such, some of the issues being discussed in this series of hearings, like those directly related to safeguards and security, business management practices, and operations in non-nuclear non-defense facilities at LANL are not under the Board's jurisdiction. There may be, however, causal elements associated with these issues that are of interest to the Board. Moreover, there are often important relationships between nuclear safety and security, and between nuclear and industrial safety. For instance, the

consolidation of nuclear materials can have both safety and security components; however, the Board's jurisdiction is limited to safety issues related to consolidation.

PAST BOARD ACTIVITIES RELEVANT TO LANL

The Board has routinely conducted nuclear safety oversight at the Los Alamos National Laboratory, or LANL, since the Board's inception in 1989. The Board's focus at LANL is directed by the hazards at that site.

Based on the hazards, the Board's primary interests at LANL include plutonium operations, processing and stabilization of nuclear materials, the potential for nuclear criticality, nuclear waste processing and storage, and tritium operations. Nuclear safety programs at LANL are also of interest to the Board, including integrated safety management, authorization bases, work control, and quality assurance.

The greatest hazard at LANL, hence the area of greatest interest to the Board, is plutonium in all forms, including metals, powders, solutions, and wastes. Consequently, the Board has placed emphasis on its oversight of the Technical Area-55 plutonium facility and the Chemistry and Metallurgy Research (CMR) facility. A few examples of the results of the Board's efforts at the plutonium

facility include improvements in the plutonium-238 scrap recovery line, the stabilization and safe packaging of excess material, and successful design and installation of the fire water system.

Other examples of areas in which the Board has been involved at LANL include facility upgrade and risk reduction initiatives to safely extend the life of the CMR facility, improvements in operations and oversight at Technical Area-18, and improvements in lightning protection at nuclear facilities.

During 2004, prior to the laboratory shutdown, the Board provided advice to NNSA identifying the need to address a number of safety issues at LANL:

> In January 2004, the Board identified deficiencies in the implementation of DOE's order on facility safety at LANL, including the structured application of engineering standards and practices and use of formal design reviews. This concern is generally referred to as "conduct of engineering." Appropriate corrective actions to address this issue have now been developed by LANL, at DOE direction, and are included as part of the Operational Efficiency Project discussed later.
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> In February 2004, the Board identified the need for a revised plan to

accelerate risk reduction efforts at LANL through the stabilization, repackaging, and disposition of excess nuclear materials. This activity is being conducted in response to two previous Board Recommendations concerning stabilization of excess nuclear materials, Recommendation 94-1 and Recommendation 2000-1. A revised schedule was developed by LANL to address this concern. These stabilization efforts have been impacted by the LANL shutdown. This is a long term activity and LANL's ability to meet the revised schedule is not certain.

In May 2004, the Board identified deficiencies in the application of Integrated Safety Management for work planning and control at several NNSA sites, including LANL. For LANL, this was a follow-up to a previous observation, and encouraged further improvements beyond those actions already taken. LANL has developed actions to improve its work planning and control processes, and these actions have been included as part of the LANL Operation Efficiency Project.

In May 2004, the Board pointed out a number of safety issues related to nuclear operations at Technical Area-18 at LANL, including an over-reliance on administrative controls in lieu of engineered controls, and the lack of effective operational oversight by both NNSA and the laboratory.

High hazard criticality operations have not been restarted at Technical Area-18. Both LANL and NNSA have made substantial changes in the management and oversight of Technical Area-18. LANL is now preparing to demonstrate readiness to conduct a limited number of criticality experiments.

Also in May 2004, the Board identified a number of deficiencies with the development and maintenance of safety bases at LANL. There have been some improvements in this area. LANL has established a safety basis academy and taken other steps to improve the quality of its safety basis submittals. Likewise, the Los Alamos Site Office has taken action to reduce its safety basis approval backlog.

Again in May 2004, the Board identified deficiencies associated with DOE Facility Representative training and staffing at NNSA sites, specifically including LANL. In order to provide the monitoring and oversight of contractor activities necessary to ensure the adequate protection of public health and safety, the Board has long communicated to DOE the necessity to maintain "eyes and ears" in its facilities. DOE's Facility Representative Program addresses this need. As a result of the Board's communication, NNSA is increasing the number of Facility Representatives

at its Los Alamos Site Office.

In June 2004, in order to enhance its oversight at LANL, the Board announced its decision to assign a second Board site representative to LANL. This second site representative began on-site duties in August 2004.

SUSPENSION OF NUCLEAR OPERATIONS AT LANL

In response to the shutdown of LANL last July, the Board went to LANL to assess the condition of the nuclear facilities to, among other things, ensure that the affected defense nuclear facilities were shut down in a safe configuration. We also wanted firsthand knowledge of the planned resumption activities. The Board provided several observations to NNSA including the need to adjust plant conditions to maintain safe and stable conditions during the shutdown, the need to aggressively pursue the implementation of improvements in the laboratory's work control process, and the need to continue to address several long-term safety initiatives that would be delayed by the shutdown.

The Board invested considerable staff resources in monitoring both NNSA and laboratory efforts during the

resumption process at LANL. In general, the Board has concluded that near-term actions and compensatory measures appear to be appropriate to support the operations that have been restarted.

THE BOARD'S CURRENT FOCUS AT LANL

The hazards associated with nuclear operations at LANL are both significant and complex. The recent shutdown resulted in the identification of numerous corrective actions. The successful implementation of these corrective actions and the execution of the Operational Efficiency Project are vital to

achieving long-term improvements in safety at LANL. The Operational Efficiency Project consists of several sub-projects focused on improving the safety of laboratory activities, all of which are of interest to the Board. These sub-projects include:

Safety (through adequate work planning and control),
Quality Assurance (including welding deficiencies),
Software Quality Assurance,
Conduct of Engineering,
Safety Bases,
Operations,
Environmental Risk Management, and
Training.

If appropriately implemented, the corrective actions identified for these Operational Efficiency Project initiatives should address several of the Board's concerns. The laboratory has established mechanisms to analyze, prioritize, and manage these actions. The Board plans to closely monitor this effort.

In addition to the Operational Efficiency Project, there are other identified corrective actions that must be completed. Fire protection upgrades must be

completed, and nuclear material stabilization and packaging activities must be continued. The resumption of certain criticality operations at Technical Area-18 must be conducted safely with deliberate operations. To reduce the risk from accidental dispersion, potentially vulnerable transuranic waste material must be removed from the site through execution of the "quick to WIPP" effort.

There are also other opportunities to improve the safety of nuclear operations at LANL. Concerns with NNSA oversight at LANL were part of a larger, complex-wide problem recognized by the Board and communicated to the Secretary of Energy in May 2004 by Recommendation 2004-1. In this Recommendation, the Board identified potential safety vulnerabilities at DOE associated with an increased emphasis on productivity at the possible expense of safety, the loss of technical competency and nuclear safety research capabilities, a lack of operational awareness at high organizational levels, and a de-emphasis of central safety oversight. The Secretary of Energy has accepted this Recommendation and an implementation plan is being developed that should result in improvements in DOE's oversight of its high hazard nuclear activities.

Concerns with the manner in which nuclear material confinement was being implemented at several defense nuclear facilities across the complex led the Board to issue Recommendation 2004-2. This recommendation calls for active confinement ventilation for nuclear facilities with the potential for a radiological release. At LANL, an

effective confinement strategy must be established for the Technical Area-55 plutonium facility in response to this Recommendation, and to ensure that accidents do not result in radioactive material being released from the facility. An effective confinement strategy must also be established for the proposed Chemistry and Metallurgy Research Replacement facility in response to this Recommendation.

The Board recently issued Recommendation 2005-1 to the Secretary of Energy, which concerns nuclear material packaging. This Recommendation resulted in part from plutonium-238 uptakes by employees at LANL that were caused by a packaging failure. The Recommendation calls for the development of DOE-wide criteria for packaging systems for nuclear materials. Implementation of this Recommendation will reduce the likelihood of a nuclear material release and subsequent worker exposure at all DOE sites, including LANL.

Late last year DOE issued a draft Request for Proposal for the LANL contract. The Board reviewed this draft Request for Proposal with respect to provisions that affect safety. We concluded that it contained unnecessary and ill-advised limitations on DOE's oversight of the contractor and undermined DOE's system for identifying and implementing safety requirements. The Board has worked with DOE to correct this condition. The latest version of the Request for Proposal addresses the Board's concern by preserving DOE's system for

identifying and implementing safety requirements, and by not limiting the ability of DOE to direct or oversee contractor activities in the safety area.

In conclusion, the Board believes that the physical and programmatic safety improvements being pursued at LANL are needed, and that close oversight by both NNSA and the Board is required to ensure that needed improvements are realized.

Thank you for the opportunity to report on the Board's efforts and perspective relative to ensuring the adequate protection of public and worker health and safety at the Los Alamos National Laboratory. This concludes my prepared remarks.

Summary of Testimony

The Defense Nuclear Facilities Safety Board provides nuclear safety oversight of DOE's defense nuclear facilities and is an advisory agency created to provide advice and recommendations to DOE concerning nuclear safety.

The DNFSB's primary interests at LANL include plutonium operations, processing and stabilization of nuclear materials, the potential for nuclear criticality, nuclear waste processing and storage, and tritium operations. Nuclear safety programs are also of interest to the DNSFB, including integrated safety management, authorization bases, work control, and quality assurance.

A number of safety improvements have resulted from the DNFSB's nuclear safety oversight at LANL. During 2004, prior to the laboratory shutdown, the DNFSB provided advice to NNSA identifying the need to address a number of safety issues at LANL in areas such as conduct of engineering; the stabilization, repackaging, and disposition of excess nuclear materials; the application of Integrated Safety Management for work planning and control; nuclear operations at Technical Area-18; the development and maintenance of safety bases; and DOE Facility Representative training and staffing. Progress in resolving these issues varies.

In response to the shutdown of LANL last July, the DNFSB provided several observations to NNSA including the need to maintain safe and stable conditions during the shutdown, the need to aggressively pursue the

implementation of improvements in the laboratory's work control process, and the need to continue to address several long-term safety initiatives that would be delayed by the shutdown. In general, the DNFSB concluded that near-term actions and compensatory measures appear to be appropriate to support the operations that have been restarted.

The shutdown resulted in the identification of numerous corrective actions. If appropriately implemented, these corrective actions should improve the safety of nuclear operations at LANL. The DNFSB plans to closely monitor this effort. In conclusion, the DNFSB believes that the physical and programmatic safety improvements being pursued at LANL are needed, and that close

oversight by NNSA and the continuing efforts by the DNFSB are required to ensure that needed improvements are realized.